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EXTERNAL ANATOMY OF THE FLORIDA WALKING STICK *Anisomorpha buprestoides* Stoll.*

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HABITS

The Florida walking stick *Anisomorpha buprestoides* Stoll. is a lubberly Phasmid occurring in considerable numbers in the state of Florida. An acrid fluid elaborated by the thoracic repellent glands can be ejected 10-18 inches in a fine mist by both sexes and the insect is often called the "musk mare."

This insect is herbivorous, deliberate in nature, and dependent upon its mimetic form and repellent fluid for protection. It is gregarious at mating time, large numbers of males and females in coitu clinging beneath fronds of scrub palmettoes in late summer and fall. The black seed-like eggs are dropped to the ground and hatch during the following spring, or remain until the second spring before hatching.

DISTRIBUTION

The Florida walking stick is a North American insect, occurring in the Southeastern States from Mississippi to the southern tip of Florida, and as far north as South Carolina. *A. ferruginea* is a smiliar insect found farther northward. It is a slightly smaller member of the genus, and lacks the conspicuous markings of *buprestoides*. Specimens used for this study were collected at Gainesville, Fla., in October 1933 and 1934.

GENERAL DESCRIPTION

A. buprestoides is elongate and subcylindrical, wingless, and furnished with slender legs and long, filiform antennae. The female is robust, averaging about 6.77 cm. in length and 0.90 cm. in width at the posterior margin of the metathorax. The male is small, the average length being 4.17 cm.

*Condensed from a thesis presented in 1935 in partial fulfilment of the requirements for the degree of Master of Science in the Graduate School of the University of Florida.

and the width 0.42 cm. For comparison the male and female are drawn to the same scale in the figures.

The general body color is various shades of reddish or grayish brown, often fuscous. There are longitudinal black stripes, one dorsal and two subdorsal, separated by two yellow or gray addorsal stripes which also extend the full length of the insect.

THE HEAD AND ITS APPENDAGES

The head (Figs. 1-4) is subquadrate, nearly oval in shape, flattened dorsally and ventrally, the gena (Fig. 3 GE) wide. The facial aspect is directed cephalad in the nymph as well as in the adult. The stem of the epicranial suture (Fig. 1 ES) is a faint line extending cephalad from the occiput (Fig. 3 OC) to a point between the antennal sclerites (ANS). Two addorsal lateral sutures (LS) originate at a granule at the inner margin of each eye (Fig. 1 GR, E) and extend caudad to the postoccipital suture (Fig. 3 POC). The frontogenal sutures (Fig. 1 FGS) are short, terminating near the cephalic margins of the eyes. These sutures are considered as the cephalic portions of the epicranial arms which have been isolated from the epicranial suture by encroachment of the antennal sclerites.[1] The vertex (Fig. 1 VX) includes about one-third of the head surface. The occiput, or posterior portion of the epicranium, is not set off by a suture. The latero-ventral portions of the occipital area are termed the postgenae (Fig. 4 PGE). The subgenal suture (SGS) forms an internal ridge strengthening the latero-ventral edges of the cranium. The fronto-clypeal suture (Fig. 2 FCS) unites the ends of the subgenal sutures. The frons, or face (FR), is a small, unpaired, median sclerite. The clypeus (CLP) is articulated to the frons along the fronto-clypeal or epistomal suture, and is capable of restricted motion.

The antennae (Fig. 5) are inserted in circular membranes (MB) giving some freedom of motion, although their general position is in a horizontal line extending forward from the head. They are over two-thirds the body length, averaging about 4.20 cm. for the female and 3.56 cm. for the male. There are 25-27 segments in the antennae of the female and 22-24 for the male.

The compound eyes are prominent (Fig. 1 E), and are set off by ocular sclerites (OS). No ocelli, or simple eyes, are present.

The bilobed and deeply cleft labrum, or upper lip (Fig. 2 LM), is suspended from the clypeus along the clypeo-labral suture (CLS), and is moved by muscles inserted in its base. The mandibles (Figs. 2, 3 MD and Fig. 6) are large and heavily sclerotized, moving freely inward and outward between the anterior and posterior articulations (Figs. 2, 6 C, A). The basimandible (Fig. 3 BMD) is a narrow plate by which the mandible is articulated to the gena along the mandibular suture. The hypopharynx (Fig. 3 HY and Fig. 7) hangs like a tongue in the preoral cavity. The maxillae (Figs. 2, 4 MX) are typical of the Orthoptera in structure, consisting of a cardo, stipes, galea, lacinia, palpifer, and palpus. The distagalea (Figs. 8, 9 DG) overlaps the distal portion of the lacinia (LA) as in other phasmids; is hood-shaped, pubescent, bearing a pointed lobular

[1] YUASA, HACHIRO, 1920. The anatomy of the head and mouthparts of Orthoptera and Euplexoptera. Jour. Morph., 33: No. 2, March, 1920.

process, the galealobulus (GL). The lacinia is flattened, heavily sclerotized, and separated from the stipes (ST) by a distinct suture. The lacinia bears two laciniadentes (LD) whose function is apparently that of holding food. The labium, or lower lip (Fig. 10), is attached to the ventral portion of the head by means of the cervical membrane (Fig. 4 CV), no cula being present. The labium is articulated laterally to the anterior extremities of the postocciput (Fig. 3 POC). Note the small size of the male labium (Fig. 11).

THE CERVICUM

The neck, or cervicum (Fig. 3 CV) is not visible from the dorsal aspect as the pronotum covers the occipital portion of the head. The cervical sclerites (LC) are articulated to the precostal bridge (ACX) of the thorax (1 TH) and extend to the postocciput (POC). The two pairs of sclerites are so closely articulated as to seem one pair of plates. Crampton [2] refers to each of these plates as a cervicale.

THE THORAX AND ITS APPENDAGES

The thorax of *A. buprestoides* (Figs. 12-14) is apterous and bears three pairs of slender legs well suited to the slow, deliberate gait of the insect. The male thorax is small and slender (Figs. 18-20). The segments are of nearly the same width, while the second and third segments of the female thorax are stout. The female thorax is about 2.82 cm. long, ranging from 2.46 cm. to 3.08 cm. in specimens collected at Gainesville, Fla. The male thorax is about 1.60 cm. long, ranging from 1.43 cm. to 1.84 cm. in length. The true prothoracic spiracles have been lost, but the second pair has migrated forward into the conjunctival fold between the prothorax (Fig. 14 1 TH) and metathorax (2 TH) until they appear to be true prothoracic spiracles (SP 1). One pair (SP 2) is found posterior to the mesothorax. The first pair of abdominal spiracles (SP 3) has migrated into the metathorax (3 TH) upon the elimination of the first true abdominal segment.

The pronotum (Fig. 12 1N) is small, averaging 0.56 cm. in length in the female and 0.33 cm. in the male. The latero-cephalic corners of the pronotum are notched to expose the external openings of the thoracic repellent glands (Fig. 12 GL), permitting the insect to eject the acrid fluid in a vertical direction.

The mesonotum (Fig. 12 2N) is distinguished by its length, averaging about 1.22 cm. in the female and 073 cm. in the male. The ridge in the costal region (CS) is not as pronounced as in the pronotum. The mesonotum has two subdorsal and two lateral rows of granules (GR), noticeable because of their light color. The anal margin of each thoracic tergite forms a lightly sclerotized fold or conjunctiva (Figs. 16, 17 CJA) overlapping the next tergite. It is of interest to note that the ventral plate or sternite of the mesothorax overlaps both the prothoracic and metathoracic sternites (S), a condition not found in other intersegmental areas on this insect.

The metanotum of the Florida walking stick averages about 1.04 cm. in length for the female and 0.63 cm. for the male. The lateral margins bear vestiges of a division (Figs. 12, 14).

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[2] CRAMPTON, G. C., 1926. A comparison of the neck and prothoracic sclerites throughout the orders of insects. Trans. Amer. Ent. Soc. LII, pp. 199-248, 1926.

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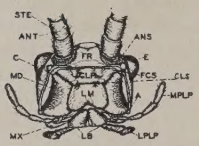

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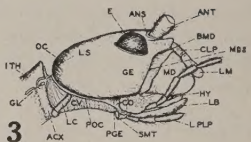

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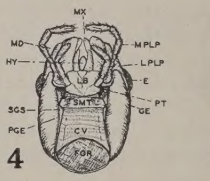

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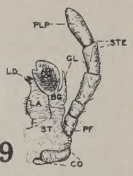

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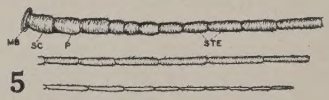

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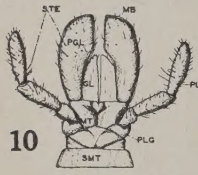

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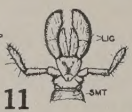

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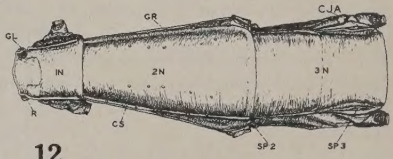

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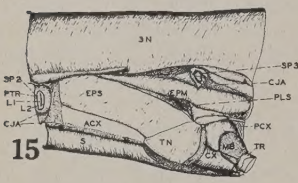

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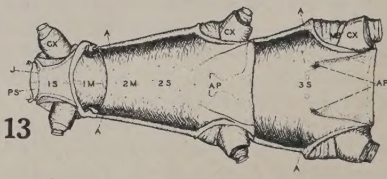

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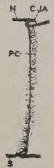

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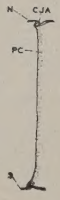

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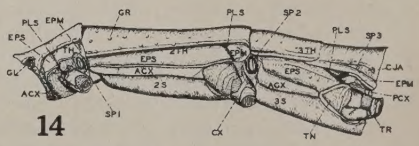

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EXPLANATION OF FIGURES

1–4 Dorsal, cephalic, lateral and ventral aspects of the head of female Florida walking stick, *Anisomorpha buprestoides* Stoll. ACX, precostal bridge; ANS, antennal sclerite; ANT, antenna; BMD, basimandible; CLP, clypeus; CLS, clypeo-labral suture; CO, cardo; CV, cervicum; E, eye; ES, epicranial suture; FCS, fronto-clypeal suture; FGS, fronto-genal suture; FOR, occipital foramen; FR, frons; GE, gena; GL, thoracic glandular opening; GR, granule; HY, hypopharynx; LB, labium; LC, cervicale; LM, labrum; LS, lateral suture; LPLP, labial palpus; MD, mandible; MDS, mandibular suture; MPLP, maxillary palpus; MX, maxilla; OC, occiput; OS, ocular sclerite; POC, postocciput; PGE, postgena; PT, posterior tentorial pit; SGS, subgenal suture; SMT, submentum; STE, setae; 1th, prothorax; VX, vertex.

5 Antenna of the female walking stick. MB, membrane; SC, scape; STE, setae.

6 Lateral and ental aspect of right mandible. A, posterior articulation; C, anterior articulation.

7 Lateral aspect of hypopharynx of female walking stick.

8–9 Ventral and dorsal aspect of right maxilla. BG, basigalea; CO, cardo; DG, distagalea; GL, galealobulus; LA, lacinia; LD, laciniadentes; PF, palpifer; PLP, palpus; Q, groove; ST, stipes; STE, setae.

10–11 Ventral aspect of female and male labium, showing proportionate size. GL, glossa; LIG, ligula; MB, membrane, MT, mentum; PGL, paraglossa; PLG, palpiger; PLP, palpus; SMT, submentum; STE, setae.

12–14 Dorsal, ventral and lateral aspect of female thorax.

15 Lateral aspect of metathorax of female.

16 Cross section of body wall between meso- and metathorax.

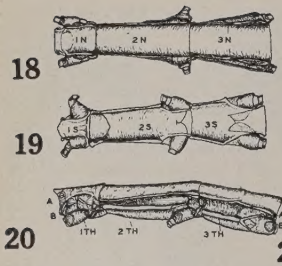
17 Cross section of body wall between metathorax and abdomen.

The prosternum, or ventral wall of the prothorax, is divided into two plates. The large anterior plate, or eusternum (Fig. 13 1 S) is evident in the figure. The second plate, or sternellum, is completely hidden by the anterior margin of the mesosternum (1M).

The mesosternum (Fig. 13 2S) overlaps the prosternum, forming a very flexible connection. The small anterior plate (1M) is joined to the large posterior plate (2M) by a lightly sclerotized, crescent-shaped suture, allowing considerable freedom of motion between the prothorax and mesothorax. The external impressions of the sternal apophyses (AP) are found between the bases of the coxae. The mesosternum is bounded laterally by the pleuroventral line (A-A).

The metasternum (Fig. 13 3S) is short and broad. The impressions of the sternal apophyses are present and much deeper than in the mesosternum. The posterior margin of this plate is superimposed upon the first abdominal segment.

The prothoracic pleurite (Fig. 14 1TH) is divided into three sclerites the precoxal bridge (ACX), episternum (EPS), and epimeron (EPM). The coxal cavity is large and membranous. The cervicale (Fig. 3 LC) is articulated to the anterior margin of the precoxal bridge forming an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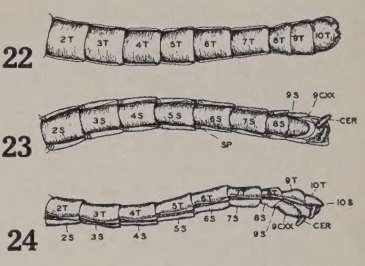
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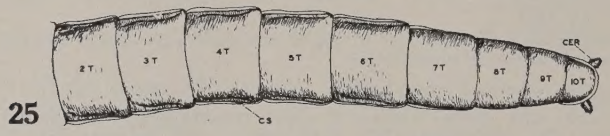
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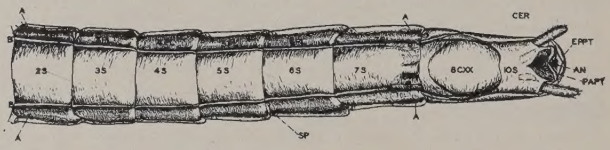
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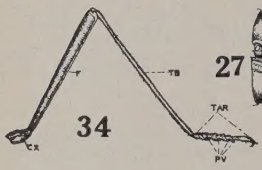
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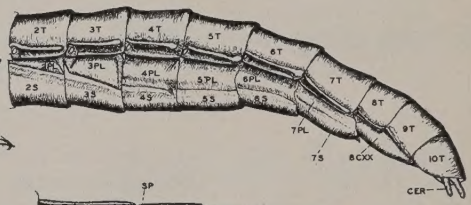
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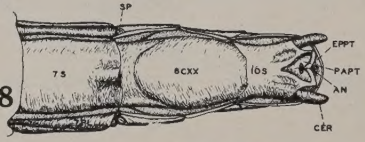
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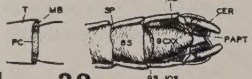
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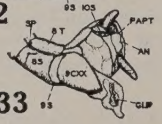
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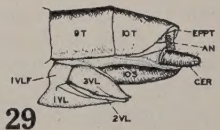
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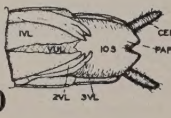
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articulation between the head and thorax. One pair of spiracles (Fig. 14 SP 1) occurs.

The mesothoracic and metathoracic pleurites are similar in structure and the latter only will be described. The episternum (Fig. 15 EPS) and precoxal bridge (ACX) are slender and divided by a suture as in many of the lower insects, the precoxal bridge constituting a separate sclerite or anterior laterale. The epimeron (EPM) is separated from the episternum by the pleural suture (PLS) and forms a bridge from the notum (3N) to the coxa (CX). The pleural suture forms internally the pleural bridge. An extension of the epimeron of the metapleurite forms a postcoxal bridge (PCX), a plate that is not found in the mesopleurite. The trochantin (TN) is flexible, permitting free motion of the coxa. The second and third pairs of spiracles (SP2, SP3) are found in the intersegmental areas anterior and posterior to the metathoracic pleurite. The original first abdominal spiracle has migrated forward to a position between the epimeron and notum of the metathorax.

The legs of the Florida walking stick are long and slender, suited to the deliberate gait of this insect. All three pairs of legs are similar and the prothoracic leg is illustrated by Fig. 34. The leg consists of a coxa (CX), trochanter (TR), femur (F), tibia (TB), tarsus (TAR), and a

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18–20 Dorsal, ventral and lateral aspect of the male thorax.

21 Cross section of body wall of male between meso- and metathorax. A-A, dorso-pleural suture; ACX, antecoxal bridge; AP, extenal impressions of sternal apophyses; B-B, pleuro-ventral suture; CJA, conjunctival fold; CS, costa; CX, coxa; EPM, epimeron; EPS, episternum; GL, openings of the thoracic repellent glands; GR, granule; J, submarginal suture of presternum; L1, anterior lip of spiracle; L2, posterior lip of spiracle; 1M, anterior plate of mesosternum; 2M, posterior plate of mesosternum; MB, membrane; 1N-3N, pro-, meso-, and metanotum; PC, precosta; PCX, postcoxal bridge; PLS, pleural suture; PS, presternum; PTR, peritreme; R, lateral ridge of pronotum; S, sternite; 1S-3S, pro-, meso-, and metasternum; SP1-SP3, spiracles; 1TH-3TH, pro-, meso-, and metathorax; TN, trochantin; TR, trochanter.

22–24 Dorsal, ventral, and lateral aspect of male abdomen.

25–27 Dorsal, ventral, and lateral aspect of female abdomen.

28 Ventral aspect of segments 7-10 of female abdomen.

29–30 Lateral and ventral aspect of tip of female abdomen.

31 Longitudinal section of abdominal wall showing intersegmental area.

32–33 Ventral and latero-ventral aspect of tip of male abdomen. A-A, dorso-pleural suture; AN, anus; B-B, pleuro-ventral suture; CER, cercus; 8CXX, subgenital plate of female; 9CXX, subgenital plate of male; EPPT, epiproct; GLP, aedeagus; MB, membrane; PAPT, paraproct; PC, precosta; 2PL-7PL, second to seventh pleurites; 2S-10S, second to tenth sternites; SP, spiracle; 2T-10T, second to tenth tergites; 1VL-3VL, first to third valvulae of ovipositor; 1VLF, first valvifer; VUL, vulva.

34 Lateral view of prothoracic leg of female.

35 Lateral view of prothoracic tarsus of female. AR, arolium; CX, coxa; F, femur; PV, pulvilli; STE, setae; TAR, tarsus; TB, tibia; UN, ungues or claws.

pretarsus comprising a pair of lateral claws (Fig. 35 UN) and a median arolium (AR). The first four segments of the tarsus bear ventrally pairs of pulvilli (PV).

THE ABDOMEN

The gravid female walking stick has a very stout abdomen that tapers gradually from the first to the last segment (Figs. 25-27). The abdomen of the male is slender, varying little in width (Figs. 22-24). The female abdomen averages 3.69 cm. in length and the male 2.33 cm. The largest female collected had an abdomen 4.05 cm. long.

The tergum (Figs. 22, 25) is composed of nine plates, or tergites, each of which telescopes under the preceding plate. The original first tergite has become obsolete.

The sternum, or ventral wall, of the abdomen is shown for the male and female respectively in Figs. 23 and 26. Segment one has become obsolete in both male and female, so the true second plate is designated as the second sternite (2S). The female abdomen has sternites two to eight, while the male has the ninth also. The tenth male sternite has been split, reduced in size, and displaced to the sides of the segment (Fig. 33 10S). The tenth female sternite is well developed (Fig. 26 10S) indicating, according to Snodgrass [3] a great extent of musculature of the cerci (CER). An eleventh segment is represented by the paraprocts (Fig. 28 PAPT) which appear to be lobes of the tenth segment, the suture having been obliterated. Dorsad to the anus (Fig. 29 AN) is a small supra-anal plate, or epiproct (EPPT), corresponding to the eleventh tergite in Thysanura.

The Florida walking stick has a distinct lateral abdominal region, or pleuron, another evidence of the primitiveness of this species. There are six pairs of pleurites (Fig. 27 2PL-7PL), bounded dorsally by the dorsopleural suture (Fig. 26 A-A) and ventrally by the pleuro-ventral suture (B-B). These sutures permit the abdomen to expand and contract for breathing. Spiracles are found on segments two to eight. The male pleurites are very narrow (Fig. 24).

THE GENITALIA

The genitalia are borne in the primitive ventral position. The ovipositor of the female (Figs. 29, 30 1VL-3VL) is poorly developed, a condition typical of the Phasmidae. The vulva (VUL), or genital aperture, is situated in the eighth abdominal sternite and protected by a prolongation of the sternite, the subgenital plate (Fig. 28 CXX). Three pairs of processes, the gonapophyses or valvulae (1VL-3VL), form the ovipositor. The first valvulae arise from the posterior margin of the eighth sternum and consist of the valvifers (1VLF), and the blades (1VL). The second valvulae lie in the primitive position within the third valvulae, with which they are united laterally except for their distal third. The second and third valvulae arise from the ninth abdominal segment. They are soft and poorly developed.

The ninth sternite (Fig. 32 9S) in the male is reduced in size and is

[3] SNODGRASS, R. E., 1931. Morphology of the insect abdomen. Part I. General structure of the abdomen and its appendages. Smithsonian Misc. Coll. 85: No. 6, 128 pp., 46 figs.

divided from the subgenital plate, or hypandrium (9CXX), by a suture. This division affords the subgenital plate freedom of motion to permit copulation. The copulatory organ, or aedeagus (Fig. 33 GLP) is an irregularly shaped mass of erectile tissue. In the act of copulation this organ is typically inserted into the vulva, as many specimens were collected in this position. Nevertheless several males and females were collected with the male organ inserted in a midventral opening posterior to the seventh female sternite (Fig. 28) which is possibly a primitive gonopore.

The writer wishes to express his appreciation to Dr. J. T. Creighton, his faculty advisor, for assistance in this investigation. This work was completed in the Department of Entomology, College of Agriculture, University of Florida, before entering the Federal service.

Nematode Laboratory, White-Fringed Beetle Control
Gulfport, Miss., Sptember 5, 1942

EARLY WORK AND WORKERS IN SOUTHERN ENTOMOLOGY

HERBERT OSBORN

(Continued from last issue)

F. M. Webster worked on the buffalo gnats of the southern Mississippi valley and his report on these pests has been the standard for years. It has been told that a resident of Arkansas said that the Government sent a man down there to work on the buffalo gnats but he "did not do a damn thing but put a few in a bottle."

F. W. Mally began his southern career under Professor Riley, working first in Louisiana, but his extended career in Texas included positions as Professor of Entomology in the Agricultural College, State Entomologist, Entomologist of the Experiment Station and in later years as a County Agent.

Howard E. Weed, Entomologist with the Mississippi Agricultural College, was a successful collector and supplied specimens for description by many specialists.

C. H. Fernald may be mentioned here because of the fact that he trained many entomologists who took positions in southern states and consequently acquired a distinct influence on the development of entomology in this region.

H. A. Morgan, who was honored guest two years ago for the Entomological Conference, began with a successful career in Louisiana over fifty years ago, later holding a position of

Entomologist, Station Director and President of University of Tennessee and lately a member of the T. V. A.

P. H. Rolfs began work as an entomologist in Florida in 1891 but was also botanist and later director of the Station and still later President of the Agriculture College of Minas Geraes, Brazil.

H. A. Gossard was entomologist of the Experiment Station when it was located at Lake City, later he accepted a position at Ohio Experiment Station which he occupied until his death.

F. L. Harvey served as botanist and entomologist in the Agricultural College of Arkansas but later went to Maine.

H. E. Summers was entomologist of the Experiment Station in Tennessee for a few years, later worked with Professor Forbes in Illinois and then as entomologist in Iowa.

E. D. Sanderson served for a number of years as Entomologist of the Agricultural College in Texas, later in New Hampshire and more recently turned to the field of rural sociology.

E. W. Berger began his long career as entomologist in the Experiment Station and State Plant Board in 1906.

Wilmon Newell served as entomologist in Louisiana, Texas and Georgia, coming to Florida in 1915 to head the work in the State Plant Board and serving also as Director of Experiment Station, Dean of Agriculture and Provost in Agriculture.

E. D. Ball worked for several years on the celery insects at Sanford, but his career has covered positions in Iowa, Colorado, Utah, Wisconsin and Arizona.

W. J. Hunter for many years was in charge of cotton insect investigations.

C. W. Stiles spent a number of years in the South and while his work was mainly devoted to public health matters, his connection with the International Commission of Nomenclature included entomological problems.

R. W. Harned, at present in charge of the Division of Cotton Insects in Washington, was for many years the head of the entomological work in Mississippi.

G. W. Herrick, Emeritus Professor at Cornell University, was the Professor of Entomology at the Mississippi Agricultural College from 1897 to 1908 and entomologist of Texas A. & M. 1908-9.

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TWO NEW FRANKLINIELLAS FROM MEXICO (THYSANOPTERA)

J. R. WATSON

Frankliniella tolucensis sp. nov.

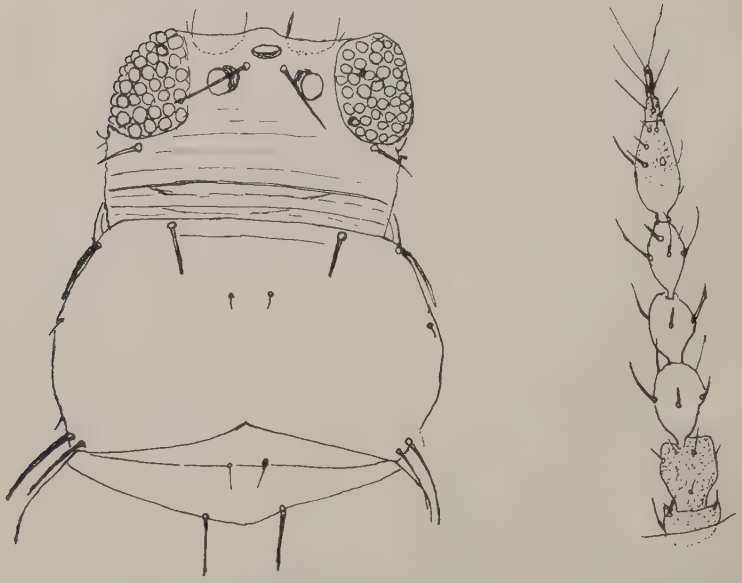
FEMALE: Color almost a uniform brown (Raw umber, Ridgeway's color standards); head and femora a little lighter brown; tarsi pale yellow; antennal segment III pale brownish yellow in basal half (except pedicel) shaded with light brown in apical half, concolorous with basal half of segment IV. In some paratypes segments III and IV are considerably darker.

Eyes and ocelli bright yellow where not covered with dark pigment, occellar crescents dark red. Wing membrane light brown except for a small, clear, oval area in basal fourth.

Head nearly half again as wide as long; cheeks nearly parallel, very slightly arched, carrying a number of pale, weak hairs; dorsum, transversely striated, the striations being especially prominent posteriorly. Eyes, prominent, slightly bulging, occupying nearly three fifths of the sides of the head and about half of the width. Ocelli large, posterior pair lying close to, but not touching, the inner margins of the eyes. Ocellar bristles, large, straight, dark, and conspicuous, by far the largest on the head, (on some paratypes 44 microns long), located well within the ocellar triangle. Postocular bristles decidedly shorter than the ocellar, strongly curved. A row of three small bristles on each side situated on lines drawn from the postoculars to a point behind each posterior ocellus. A pair of small ones anterior to the anterior ocellus.

Antennae over twice as long as the head. Segment I concolorous with the head, segment II much darker, pedicel short and wide; sense cones on the outer margin of segment III and the inner margin of IV large and strongly curved. Mouth cone reaching the posterior border of the prothorax.

Right Antenna Head and Prothorax
Fig. 1.—*Frankliniella tolucenensis* sp. nov.



Head and Prothorax Left Antenna
Fig. 2.—*Frankliniella deserti-leonum* sp. nov.

Prothorax about as long as the head and but little wider than the head, sharply rounded at posterior angles. Dorsum rather finely cross striated. Spines dark and conspicuous. Anterior laterals varying in length from 20 to 30 microns, those on anterior angles from 23 to 46 microns, the posterior one sharply recurved; those on posterior angles from 63 to 70 microns, about a dozen small bristles on dorsum, six along the anterior margin between the anterior marginals. Metathorax much wider than the prothorax, sides nearly parallel but often arched.

Legs rather long and slender, uniformly brown except tarsi and the extreme bases of the hind femora which are a brownish yellow.

Wings rather short, seldom reaching tip of abdomen, anterior margin carrying about 27 bristles, anterior vein about 21, posterior vein from 15 to 17.

Abdomen rather slender, comb on posterior margin of segment 8 composed of about 12 rather long and heavy bristles. Largest bristles on segment 8, 140 microns.

Measurements of the type: Total body length 1.37 mm.; head, length .13 mm.; greatest width .16 mm.; prothorax, length .14 mm.; greatest breadth .187 mm.; mesothorax width .26 mm.; abdomen, greatest width .28 mm.; antennae length .29 mm. Length (breadth) of segments: I, 23 (28); II, 35 (28); III, 61 (23); IV, 54 (26); V, 42 (21); VI, 59 (21); VII, 12 (9); VIII, 17 (5) microns. Ocellar bristles 44, post oculars 23.

Described from 20 females taken from the dense heads of a large species of *Eryngium* growing near the top of the Volcano Nevado de Toluca, near the city of Toluca, Mexico, altitude about 13,000 feet. Collected by the writer on August 25, 1939. No males taken.

Frankliniella deserti-leonidum sp. nov.

FEMALE: Color by transmitted light dark brown, abdomen a blackish brown, fore tibiae and tarsi, and antennal segments III to V, abruptly bright yellow; wing membrane abruptly colorless in basal two fifths, shaded with brown in apical three fifths, darker along veins. Head nearly square in dorsal aspect but a little wider than long. Front margin nearly straight. Dorsum crossed by two prominent nearly straight lines and some fainter ones. Inter ocellar bristles conspicuous, each located a little inside a line drawn through the middles of the anterior and the posterior ocelli, 23 microns long. Postocular bristles a trifle longer (28 microns) and slightly curved, their bases very close to the posterior margins of the eyes. Cheeks parallel but slightly arched, bearing a number of short bristles.

Antennae nearly two and a half times as long as the head. Segments I and II brown, nearly as dark as the head, III, IV, and V abruptly light lemon yellow, V shaded with brown in apical half, VI-VIII concolorous with I and II, short pedicels of III-V, almost colorless, V small, narrow, VI short and thick, abruptly rounded to a short pedicel. Sense cone on inner angle of IV short and sharply recurved at apex; that on outer angle of segment III longer and only slightly curved; all spines dark and conspicuous. Eyes large, slightly protruding, occupying a little more than half of the sides of the head and about two thirds its width, light yellow, rather coarsely faceted 20-30 visable in dorsal aspect; ocelli large brownish yellow, bordered by dark red crescents, anterior directed forward, posterior

opposite the middle of the eyes and very close to their margins. Mouth cone reaching the mesothorax.

Prothorax about as long as the head and considerably wider; sides conspicuously arched and sharply rounded to the mesothorax. Anterior marginal bristles 23 microns long, those at the anterior angles 31, and at posterior angles 51 microns.

Metathorax considerably narrower than prothorax, sides nearly straight and slightly diverging posteriorally. Legs of medium length, the hind pair especially appear weak. Wings short and weak in comparison with the sturdy body, not reaching the tip of the abdomen. Coastal margin with about 21 bristles. Anterior vein with 19, posterior 14 bristles.

Abdomen heavy, much the widest part of the body. Bristles on segment IX rather short, longest 112 microns.

Measurements of type: Total body length, 1.1 mm. Head, length .1 mm., width .114 mm.; prothorax, length .1 mm., width .18 mm.; mesothorax, width .22 mm.; abdomen, width .29 mm., antenna .24 mm.

Segments, length (width): I, 21 (33); II, 35 (26); III, 49 (21); IV, 42 (23); V, 38 (18); VI, 47 (21); VII, 11 (9); VIII, 12 (7) microns.

Described from two females taken in sweeping herbs in the "Desert-of-the-Lions." D. F. Mexico, Aug. 16, 1938. Type in author's collection, paratype in that of Dudley Moulton, to whom the writer is indebted for examining and criticising both of these species.

SOME UNUSUAL HOSTS OF COTTONY CUSHION-SCALE

E. W. BERGER
Entomologist, State Plant Board of Florida

The following seemingly worthwhile entomological information is taken mainly from the files of the Entomogical Department of the State Plant Board, beginning in 1915, when the Plant Board was organized.

In Florida Experiment Station Bulletin No. 56, 1901, Professor H. A. Gossard, then Station Entomologist, gives an account of an outbreak of Cottony Cushion-Scale at Clearwater (Pinellas County) in the late 90's of the last century and refers to an unusually heavy infestation of this scale on Wax Myrtle *(Myrica cerifera)*. Judging from his account one would expect to find heavy infestations of this scale on Wax Myrtle right along as there is plenty of it growing wild in Florida and elsewhere. However, there have been only five or six times that we have received scale on this host indicating a paucity of infestations on this plant. Specimens, indicating a heavier infestation, how-

ever, have recently been received from Ridgeland, South Carolina.

I have no certain explanation for the scale not occurring more regularly and abundantly on this host plant since Gossard's report in regard to it in 1899.

I presume one can conceive of chance variations of the scale, one of which displayed a better liking for the Wax Myrtle at Clearwater and developed into the extreme infestation recorded by Gossard. Again, the variation may have occurred in the myrtle, the myrtle in the thicket referred to by Gossard better supplying the needs of the scale. Then, also, the soil conditions in the thicket cannot be ruled out as these may have produced something in the plants favoring the development of the scale. Anyhow, the facts are as stated that the few specimens of Cottony Cushion-Scale on myrtle received do not indicate heavy infestations, except perhaps the one from South Carolina previously noted.

It would be superfluous here to give any long list of host plants of Cottony Cushion-Scale as such has been published elsewhere. There are, however, several other plants listed by Gossard that have either not been found infested by the Plant Board Inspectors or so listed by us only once or twice. Thus, quince has been received by us only once slightly infested from Sebring; fig only one record (slight) from West Palm Beach; solidago (goldenrod) twice, but only slight, in Gainesville; mulberry and pomegranate none during the past twenty-six years.

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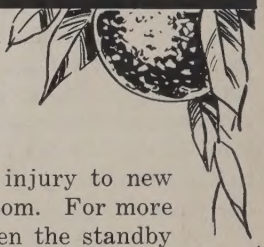

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